

REMARKS

INTRODUCTION

In accordance with the foregoing, claim 13 has been added. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-13 are pending and under consideration.

PRIOR ART

Prakriya discusses a system for creating a displayable graph representing pre-existing items (nodes) and their relations (connections), without altering those pre-existing items and relations. The items and their relations are the input, and a graphical layout is the output (see Fig. 2). The items and their relations are arranged by recursive subdivision according to focus nodes that have the most relations. More particularly, a first node is determined, and then the positions of other nodes are decided. The nodes are connected by connectors in a manner reflecting the subordinate hierarchical relations among the nodes. The nodes are laid out to avoid overlap between nodes or between nodes and connectors.

Insertion of nodes/items is not discussed by Prakriya. No relations are reconnected, and no new relations/connections are created. There is a one-to-one correspondence between items and nodes, and between relations and connections. Items are displayed as nodes, and relations are displayed as connections (see input data Fig. 3 and displayed output data Fig. 7B). Those correspondences are not altered, as they would be if an item/node were inserted.

PRESENT INVENTION

The present invention relates to editing a graph, such as the type of graph that might be produced by Prakriya. Graphs are well known computer science data structures, and they consist of nodes and connections between the nodes. Graphs are frequently displayed in graphic editing programs, such as Microsoft's VISIO, in which graph nodes and connections are manipulated and altered. A frequent editing operation is the manual insertion of a new node between two connected nodes of a graph. With the prior art, inserting a new node with an editor is time consuming and error-prone because the process is done manually. With the prior art, a new node graphic is manually created, existing connections are manually reconnected to the

new node or are manually deleted and manually replaced with new connections. Furthermore, the positions of the nodes must be manually rearranged for proper layout and appearance.

The present invention avoids problems of manually inserting a new node into a display of a graph, in part, by automatically triggering an automated insertion process. Claim 1, for example automates insertion of a node ("third object") between first and second nodes ("first object" and "second object"). Claim 1 provides an "editing unit" that connects the insertion node ("third object") by "creating a second connector for connecting the first object", e.g. the existing node, "and the third object", e.g. an insertion node. The editing unit also creates a new third connector connecting the other existing node with the insertion node. This process occurs "when a third object", e.g. an insertion node, "is located in a predetermined position in relation to the first connector". Although the claims do not recite the word insertion, that is clearly a combined effect of their features.

The present invention solves problems of manual node insertion, however, the present invention is not a mere automation of a manual process. For example, the present invention uses various bases to automate when and where a node is to be inserted, including when the object to be inserted is located at a pre-determined position (e.g. claim 1), and when a connector of two existing nodes is selected (e.g. claim 5).

REJECTION UNDER 35 U.S.C. § 102

In the Office Action, claims 1-12 were rejected under 35 U.S.C. § 102 as anticipated by Prakriya. This rejection is traversed and reconsideration is requested.

The rejection of claim 1 was improper because the Examiner did not consider all of the claim's limitations. MPEP § 706.02(j) states that "the prior art reference (or references when combined) must teach or suggest **all the claim limitations**." In other words, an Examiner is to give full patentable weight to all claim limitations. Claim 1 recites "an editing unit". The Examiner has not cited an "editing unit" in Prakriya, and Prakriya does not discuss one. Furthermore, general editing of graphs, and **logical** insertion of nodes into graphs and other data structures are not new to computer science. What is new, however, is an **editing unit** (or editor) capable of conveniently and automatically inserting a node within an existing displayed graph. Prakriya does not teach all of the limitations of claim 1, and withdrawal of the rejection of claim 1 is therefore respectfully requested.

The Examiner cited various portions of Prakriya as teaching features of claim 1.

However, as discussed below, these portions of Prakriya do not discuss anything relating to inserting nodes by editing a displayed pre-existing graph. Instead, Prakriya discusses positioning and disposing a plurality of nodes in reference to a pre-assigned set of information.

The Examiner cited col. 13, line 25 et seq, however this portion only discusses calculating an approximate location for each sub-graph relative to the focus node, and each sub-graph putting into one of the 8 location groups surrounding the focus node. The Examiner cited col. 14, line 25 et seq, which only discusses routing connectors between the focus node and respective groups. The Examiner cited col. 16, line 20 et seq, which only discusses positioning all sub-graphs within each of the 8 groups positioned around the focus node, and positioning the sub-graphs in such a manner that nodes and connectors do not overlap. Col. 17, line 34 was cited, however this portion of Prakriya discusses only providing information such as the coordinates of connectors connecting between nodes.

Finally, the Examiner cited Col. 18, line 22 et seq, which only discusses the data to be graphically displayed, as shown in Figs. 11 - 14. This cited portion further proves that Prakriya does not discuss node insertion. If a node were inserted, application data being represented (e.g. database information) would be altered. Such alteration would either indiscriminately affect the underlying application data, or mis-portray the data. This understanding of Prakriya is further supported by comparing Figs. 3 and 7B. Fig. 3 shows the underlying items and relations serving as input to be portrayed. Fig. 7B shows resulting output after application of Prakriya (see. col. 9, lines 4-10). Comparing these figures, Fig. 7B shows the same items and input relations that are shown in Fig. 3 as graphical nodes and connection; no node or item is inserted and relations are preserved.

As apparent from the above summaries of the portions of Prakriya relied on by the Examiner, Prakriya does not discuss anything related to inserting a new node among nodes already displayed on a display screen (claim 1, for example, recites "displaying a graphic"). Rather, Prakriya is directed to positioning a plurality of nodes with reference to pre-existing and unmodified items and their relations. There is no graphic display until all nodes have been positioned, as shown in Figs. 2 and 8. Withdrawal of the rejection of claim 1 is further respectfully requested.

Claims 5, and 8-12 recite features similar to claim 1. For example, claims 9 and 10 recite "graphic editing" methods. Claims 5, and 8-12 are therefore allowable due at least to the points discussed above with reference to claim 1. Withdrawal of the rejection of claims 5, and 8-12 is

respectfully requested.

Claims 5, 10, and 12 also recite "when the first connector is *selected*". Prakriya does not discuss editing or an editing unit. Therefore, contrary to the Examiner's assertion, Prakriya cannot discuss "selecting" anything. Withdrawal of the rejection of claim 5, 10, and 12 is further respectfully requested.

New claim 13 recites "*inserting a node* into a displayed graph ... determining a first connection in the graph by comparing a position of the first connection with a position of an input device ... and inserting the insertion node into the graph by creating a second connection connecting the insertion node to the first node, and by creating a third connection connecting the insertion node to the second node." Allowance of claim 13 is respectfully requested.

DEPENDENT CLAIMS

Claims 2-4, and 5-7 are deemed patentable due at least to their dependence from allowable independent claims. These claims are also patentable due to their recitation of independently patentable features. For example, claim 7 recites a "virtual coordinate system" used by the editing unit to locate each object. Prakriya does not teach or discuss this feature. Withdrawal of the rejection of claims 2-4, and 5-7 is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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VERSION WITH MARKING TO SHOW CHANGES

Please ADD claim 13 in accordance with the following:

13. (NEW) A method of inserting a node into a displayed graph, comprising:
determining a first connection in the graph by comparing a position of the first connection with a position of an input device, where the first connection connects a first displayed node and a second displayed node; and
inserting the insertion node into the graph by creating a second connection connecting the insertion node to the first node, and by creating a third connection connecting the insertion node to the second node.